INTERVIEW SUMMARY

Applicants wish to thank Examiner Rude for the helpful and courteous discussion with Applicants' Representative on March 11, 2005. During this discussion, the Examiner noted that Hattori et al should have not been cited in his Office Action and that this merely a typographical error. See the Interview Summary.

Further, it was noted that Iwamatsu et al fail to disclose or suggest that the liquid crystal in the interline portions remains in a focal conic state, and the relation $1.0 \cdot d \leq a \leq 4.0 \cdot d$, as claimed in Claim 1. In addition, Iwamatsu et al fail to disclose or suggest the relation $1.0 \cdot d \leq a \leq d \cdot V_{max}/10$ volts, as claimed in Claim 2.

The combination with Morokawa et al is improper because this reference does not pertain to chiral nematic displays with a planar and a focal conic state but to liquid crystal optical modulators using twisted nematic, super-twisted nematic and ferroelectric liquid crystals (abstract, col. 8, lines 3-5, col. 11, lines 48-50). Thus, there is no disclosure or suggestion of how to control the alignment state of a chiral nematic liquid crystal in an interline portion to be focal conic by using the above relations. See also the specification of the present invention at page 15, line 18 to page 16, line 2.

The Examiner agreed that based on the above arguments it appears that his rejection may not be proper.

REMARKS

Claims 1-23 are active in this application. Claims 1-3, 5, 6, 8, 10 and 22-23 are under consideration. Claims 4, 7, 9 and 11-21 stand withdrawn form consideration as being drawn to non-elected subject matter.

Applicants respectfully request reconsideration of the application in view of the following remarks.

The present invention as set forth in **Claim 1** relates to a liquid crystal display element, comprising, *inter alia*, a chiral nematic liquid crystal layer comprising

a nematic liquid crystal which exhibits a plurality of display states, wherein one of said display states is a planar state and another display state is a focal conic state;

wherein the **liquid crystal in the interline portions remains in a focal conic state**, and

wherein the maximum space a (μm) between adjacent electrode regions and the thickness d (μm) of the liquid crystal layer satisfy a **relational formula of** $\mathbf{1.0 \cdot d \leq a \leq 4.0 \cdot d}$.

In **Claim 2**, the maximum space a (μm) between adjacent electrode regions, the thickness d (μm) of the liquid crystal layer, and the maximum effective voltage V_{max}(V) of a voltage applied to the front side electrode and the rear side electrode satisfy a **relational formula of** $\mathbf{1.0 \cdot d \leq a \leq d \cdot V_{max}/10}$ **volts**.

In contrast, Iwamatsu et al fail to disclose or suggest that the liquid crystal in the interline portions remains in a focal conic state, and the relation $1.0 \cdot d \leq a \leq 4.0 \cdot d$, as claimed in Claim 1. This has been admitted by the Office, Office Action of January 26, 2005, page 3, last paragraph. In addition, Iwamatsu et al fail to disclose or suggest the relation $1.0 \cdot d \leq a \leq d \cdot V_{max}/10$ volts, as claimed in Claim 2.

The combination with Morokawa et al is improper because this reference does not pertain to chiral nematic displays with a planar and a focal conic state but to liquid crystal optical modulators using twisted nematic, super-twisted nematic and ferroelectric liquid crystals (Morokawa et al, abstract, col. 8, lines 3-5, col. 11, lines 48-50). Thus, there is no disclosure or suggestion of how to control the alignment state of a chiral nematic liquid crystal in an interline portion to be focal conic by using the above relations. See also the specification of the present invention at page 15, line 18 to page 16, line 2, which states that

"Accordingly, in order to control the alignment state of the liquid crystal by an electric filed in both the pixel potion and the interline portion, it is necessary that the maximum space a between the adjacent electrode regions on the same substrate surface and the thickness d ... of the liquid crystal layer satisfy a relational formula $1.0 \cdot d \leq a \leq 4.0 \cdot d$.

In a chiral nematic liquid crystal display element, it is necessary to satisfy a relational formula of $1.0 \cdot d \leq a \leq d \cdot V_{max}/10$."

The dependent claims are deemed to be allowable by Applicants because the independent Claims are deemed allowable.

Therefore, the rejection of Claims 1-3, 5, 6, 8, 10, 22 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Iwamatsu et al (US 6,348,961) in view of Morokawa et al (US 5,654,782) and the rejection of Claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Iwamatsue in view of Morokawa and further in view of Masuzawa (US 6,765,638 B1) are believed to be unsustainable as the present invention is neither anticipated nor obvious and withdrawal of these rejections is respectfully requested.

Withdrawn claims that depend from an allowable claim or include all limitations of an allowable claim should be rejoined.

This application presents allowable subject matter, and the Examiner is kindly requested to pass it to issue. Should the Examiner have any questions regarding the claims or otherwise wish to discuss this case, he is kindly invited to contact Applicants' below-signed representative, who would be happy to provide any assistance deemed necessary in speeding this application to allowance.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon

Tel: (703) 413-3000
Fax: (703) 413 -2220
NFO:KAG:sjh

Kirsten A. Grueneberg, Ph.D.
Registration No.: 47,297